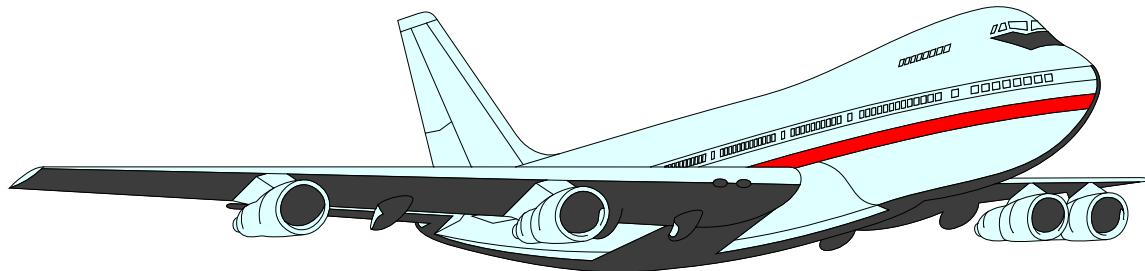


FLIGHT ENGINEER KNOWLEDGE TEST GUIDE



October 2016



U.S. Department of Transportation
Federal Aviation Administration

INTRODUCTION

FAA-G-8082-9, dated October 2016, Flight Engineer Knowledge Test Guide, provides information for preparing you to take one or all of the following airman knowledge tests. This document supersedes all previously dated FAA-G-8082-9 versions.

<u>Test Name</u>	<u>Test Code</u>
Flight Engineer Turbojet/Basic	FEX
Flight Engineer Turboprop/Basic	FET
Flight Engineer Reciprocating Engine/Basic	FEN
Flight Engineer Turbojet (added rating)	FEJ
Flight Engineer Turboprop (added rating)	FEP
Flight Engineer Reciprocating Engine (added rating)	FER

At one time, the flight engineer functioned as an inflight maintenance person. Today, the flight engineer is a technical expert, who must be thoroughly familiar with the operation and function of various airplane components. The principal function of the flight engineer is to assist the pilots in the operation of the airplane. Specific duties vary with different airplanes and operators.

The questions and answers on the Flight Engineer Knowledge Tests pertain only to airplanes that require a flight engineer. Because the questions and answers cover a wide scope of airplanes, powerplants, and systems, some questions are general in nature. The information contained in the questions and answers should never take precedence over specific information furnished by a manufacturer in the operation of an airplane.

Federal Aviation Administration (FAA) airman knowledge tests are effective instruments for aviation safety and regulation compliance measurement. However, these tests can only sample the vast amount of knowledge every pilot needs to operate safely in the National Airspace System (NAS).

Comments may be e-mailed to AFS630Comments@faa.gov.

KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

Prior to taking a Flight Engineer Knowledge Test, you must be able to read, speak, and understand the English language; have appropriate documentation to verify that you are 19 years of age; and meet the experience requirements of Title 14 of the Code of Federal Regulation (14 CFR) part 63, section 63.37.

The proof of age may be satisfied by presenting photo identification, such as a driver's license, a government or military identification card, passport, or similar identification.

To verify that you meet the experience requirements of 14 CFR part 63, section 63.37, it is necessary to obtain a written statement and signature from one of the following authorized persons:

- A qualified flight engineer with the appropriate class rating
- A U.S. Armed Forces flight engineer instructor for the same class of airplane
- A flight engineer instructor associated with 14 CFR part 121 training program
- An FAA Aviation Safety Inspector (operations/airworthiness)

The endorser must include a statement that they have personally verified that you meet the experience requirements of 14 CFR part 63, section 63.37. They must also identify their position, such as flight engineer certificate number, name of the training facility, and FAA inspector's office identification.

For a summary of knowledge test eligibility requirements for all certification areas listed above, refer to the FAA Airman Knowledge Testing Authorization Matrix located at http://www.faa.gov/training_testing/testing/media/testing_matrix.pdf.

KNOWLEDGE AREAS ON THE TESTS

You must pass a knowledge test on the areas specified by 14 CFR part 63, section 63.35. The areas are arranged in the following order on the knowledge tests: applicable Code of Federal Regulations; theory of flight and aerodynamics; meteorology with respect to engine operations; operating procedures (Pre-flight, normal, and emergency); airplane equipment; airplane systems; limitations (airplane procedures and engine operations); and math computations (engine operations, fuel consumption, center of gravity, and airplane loading).

DESCRIPTIONS OF THE TESTS

All test questions are the objective, multiple-choice type. Each question can be answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence, the correct response to another. **The minimum passing score is 70 percent.**

The following tests are for original class ratings and each contains 80 questions. You are allowed 3 hours to complete each test.

- Flight Engineer Turbojet/Basic (FEX)
- Flight Engineer Turboprop/Basic (FET)
- Flight Engineer Reciprocating Engine/Basic (FEN)

If you desire to add a class rating to your flight engineer certificate, you must successfully complete a knowledge test appropriate to the desired class rating. The following tests are for additional class ratings and each contains 50 questions. You are allowed 2 hours to complete each test.

- Flight Engineer Turbojet (added rating) (FEJ)
- Flight Engineer Turboprop (added rating) (FEP)
- Flight Engineer Reciprocating Engine (added rating) (FER)

TEST REGISTRATION

The FAA has designated two Airman Knowledge Testing (AKT) Organization Designation Authorization (ODA) Holders, which sponsor hundreds of knowledge testing center locations. These testing centers offer a full range of airman knowledge tests including: Aircraft Dispatcher, Airline Transport Pilot, Aviation Maintenance Technician, Commercial Pilot, Flight Engineer, Flight Instructor, Flight Navigator, Ground Instructor, Inspection Authorization, Instrument Rating, Parachute Rigger, Private Pilot, Recreational Pilot, Sport Pilot and Military Competence. Contact information for the AKT ODA Holders is provided below under Knowledge Test Centers.

The first step in taking a knowledge test is the registration process. You may either call a central registration phone number or appear at a testing center on a walk-in basis. If you choose to use a central registration phone number to schedule your test, you will need to be prepared to select

a test date, choose a testing center, and make financial arrangements for test payment. You may register for tests several weeks in advance, and you may cancel your appointment according to the AKT ODA Holder's cancellation policy. If you do not follow the AKT ODA Holder's cancellation policies, you could be subject to a cancellation fee.

APPLICANT IDENTIFICATION AND TEST AUTHORIZATION

The next step in taking a knowledge test is providing proper identification. You should determine what knowledge test prerequisites are necessary before going to the computer-testing center. Your instructor or local FAA Flight Standards District Office (FSDO) may advise you regarding the documentation required to be presented at the testing facility. Testing center personnel will not begin the test until your identification and eligibility is verified.

Acceptable forms of authorization and retesting procedures are available in the latest version of the Applicant Identification, Information, Verification, & Authorization Requirements Matrix located at http://www.faa.gov/training_testing/testing/media/testing_matrix.pdf.

TEST TAKING TIPS

Prior to launching the actual test, the AKT ODA Holder's testing software will provide you with an opportunity to practice navigating through the test. This practice (or tutorial) session may include a "sample" question(s). These sample questions have no relation to the content of the test, but are meant to familiarize you with the look and feel of the system screens, including selecting an answer, marking a question for later review, time remaining for the test, and other features of the testing software.

When taking a test, keep the following points in mind:

- Carefully read the instructions given with the test.
- Answer each question in accordance with the latest regulations and guidance publications.
- Read each question carefully before looking at the answer options. You should clearly understand the problem before attempting to solve it.
- After formulating an answer, determine which answer option corresponds with your answer. The answer you choose should completely resolve the problem.
- From the answer options given, it may appear that there is more than one possible answer; however, there is only one answer that is correct and complete. The other answers are either incomplete, erroneous, or derived from popular misconceptions.
- If a certain question is difficult for you, it is best to mark it for review and proceed to the next question. After you answer the less difficult questions, return to those you marked for review and answer them. The review marking procedure will be explained to you prior to starting the test. Although the computer should alert you to unanswered questions, make sure every question has an answer recorded. This procedure will enable you to use the available time to maximum advantage.
- When solving a calculation problem, select the answer that most nearly matches your solution. The problem has been checked by various individuals and with different types of calculators; therefore, if you have solved it correctly, your answer will be closer to the correct answer than any of the other choices.

USE OF TEST AIDS AND MATERIALS

You may use aids, reference materials, and test materials within the guidelines listed below, as long as, actual test questions or answers are not revealed. All models of aviation-oriented calculators may be used, including small electronic calculators that perform only arithmetic functions (add, subtract, multiply, and divide). Simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory, are permissible. Also, simple functions, such as square root and percent keys are permissible.

The following guidelines apply:

1. You may use any reference materials provided with the test. In addition, you may use scales, straightedges, protractors, plotters, navigation computers, log sheets, and electronic or mechanical calculators that are directly related to the test.
2. Manufacturer's permanently inscribed instructions on the front and back of such aids (e.g., formulas, conversions, regulations, signals, weather data, frequencies, weight-and-balance formulas) are permissible.
3. Testing centers may provide a calculator to you and/or deny use of your personal calculator based on the following limitations:
 - a. Prior to, and upon completion of the test, while in the presence of the Unit Member (formerly referred to as proctor), you must actuate the ON/OFF switch and perform any other function that ensures erasure of any data stored in memory circuits.
 - b. The use of electronic calculators incorporating permanent or continuous type memory circuits without erasure capability is prohibited. The Unit Member may refuse the use of your calculator when unable to determine the calculator's erasure capability.
 - c. Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
 - d. The use of magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved is prohibited.
 - e. You are not permitted to use any booklet or manual containing instructions related to use of test aids.
4. Dictionaries are not allowed in the testing area.
5. The Unit Member makes the final determination relating to test materials and personal possessions you may take into the testing area.

TESTING PROCEDURES FOR APPLICANTS REQUESTING SPECIAL ACCOMMODATIONS

If you are an applicant with a learning or reading disability, you may request approval from AFS-630, through the local FSDO or IFO, to take an airman knowledge test using one of the three options listed below, in preferential order:

- Option 1. Use current testing facilities and procedures whenever possible.
- Option 2. You may use a self-contained, electronic device which pronounces and displays typed-in words (e.g., the Franklin Speaking Wordmaster®) to facilitate the testing process. (NOTE: The device should consist of an electronic thesaurus that audibly pronounces typed-in words and presents them on a display screen. The device should also have a built-in headphone jack for private listening in order to avoid disturbing others during testing.)

- Option 3. If you do not choose to use the first or second option, you may request Unit Member assistance in reading specific words or terms from the test questions and/or supplement book. In the interest of preventing compromise of the testing process, the Unit Member must be an individual with no aviation background or expertise. The Unit Member must provide reading assistance only, with no explanation of words or terms. When this option is requested, the FSDO or IFO inspector must contact the Airman Testing Standards Branch (AFS-630) for assistance in selecting the test site and assisting Unit Member.

Prior to approval of any option, the FSDO or IFO Aviation Safety Inspector must advise you of the regulatory certification requirement of being able to read, write, speak, and understand the English language.

CHEATING OR OTHER UNAUTHORIZED CONDUCT

Computer testing centers must follow strict security procedures to avoid test compromise. These procedures are established by the FAA and are covered in FAA Order 8080.6 (as amended), Conduct of Airman Knowledge Tests. The FAA has directed testing centers to terminate a test at any time a test Unit Member suspects a cheating incident has occurred. An FAA investigation will then be conducted. If the investigation determines that cheating or unauthorized conduct has occurred, any airman certificate or rating you hold may be revoked, and you will be prohibited for 1 year from applying for or taking any test for a certificate or rating under 14 CFR part 61.

LEARNING STATEMENTS

Learning statements, as used in airman knowledge testing, refer to a measurable level of knowledge a student should be able to demonstrate following a defined element of training. The most current Learning Statement Reference Guide for Airman Knowledge Testing is online at http://www.faa.gov/training_testing/testing/media/LearningStatementReferenceGuide.pdf.

We provide learning statements to help instructors and students become more familiar with the areas of knowledge applicable to the airman training, learning, studying, and testing processes.

Beyond serving as a useful reference in preparing for your airman knowledge test, the Learning Statement Reference Guide will assist you and your instructor in interpreting any learning statement codes that may appear on your Airman Knowledge Test Report. You will receive a test report immediately upon completion of the test. This report will list learning statement codes for any questions you may have answered incorrectly. You and your instructor should match the codes on the test report to the information in the Learning Statement Reference Guide in order to obtain the corresponding areas of knowledge deficiency.

Your instructor may be required to provide instruction on each of the areas of deficiency, and to provide a logbook or training record endorsement certifying you have demonstrated satisfactory knowledge in each area. Also, you must present the *original* Airman Knowledge Test Report to the examiner conducting your practical test. During the practical test, the examiner will refer to the learning codes and statements to evaluate your knowledge in the noted areas of deficiency.

REQUESTING YOUR TEST BE HAND-SCORED

If you wish to have your test hand-scored, you must submit a request, in the form of a signed letter, to the Airman Testing Standards Branch, AFS-630. The request must be accompanied by a copy of your Airman Knowledge Test Report and a legible photocopy of a government issued identification with your photograph and signature. Mail or fax this information to: (e-Mail requests are not accepted due to security issues.)

Federal Aviation Administration
Airman Testing Standards Branch, AFS-630
P.O. Box 25082
Oklahoma City, OK 73125
Or Fax to: 405 954-4748

Note: *If you have comments regarding test questions, test procedures, or supplemental material content, please email AFS-630 at AFS630Comments@faa.gov.*

AIRMAN KNOWLEDGE TEST REPORTS

Upon completion of the knowledge test, you will receive your Airman Knowledge Test Report, which reflects your score. The test report will be stamped with the testing center's raised/embossed seal.

The Airman Knowledge Test Report must be presented to the examiner prior to taking the practical test. During the oral portion of the practical test, the examiner is required to evaluate the noted areas of deficiency.

Should you require a duplicate Airman Knowledge Test Report due to loss or destruction of the original, send a signed request accompanied by a check or money order for \$1.00, payable to the FAA. Send the request to:

Federal Aviation Administration
Airmen Certification Branch, AFS-760
P.O. Box 25082
Oklahoma City, OK 73125

Airman Knowledge Test Reports are valid for the 24-calendar month period following the month you complete the practical test. **If the Airman Knowledge Test Report expires before completion of the practical test, you must retake the knowledge test.**

TRAINING AND TESTING PUBLICATIONS AND GENERAL INFORMATION

Most of the current Flight Standards Service airman training and testing publications can be obtained in electronic format from the FAA Website, www.faa.gov. The training and testing publications and general information can be found on the opening page of that Website under the Training and Testing tab. If a publication is not available in electronic format, there are instructions for obtaining paper copies. Information found on the Website includes the following:

- Advisory Circulars
- Airworthiness Directives
- Code of Federal Regulations
- Computer Testing Supplements
- Knowledge Test Centers

- Sample Knowledge Test questions
- Knowledge Test Statistics
- Learning Statement Reference Guide
- Practical Test Standards
- Training Handbooks
- Type Certificate Data Sheets

Advisory Circulars

Advisory circulars (ACs) provide guidance and information on various subjects related to airman certification.

Airworthiness Directives

Airworthiness Directives (ADs) are notifications to aircraft owners of a known safety deficiency with a specific model of aircraft, engine, avionics, or other system.

Code of Federal Regulations

The portion of 14 CFR containing what was formerly known as the Federal Aviation Regulations can be found on the Website. 14 CFR contains regulations designed to promote aviation safety, and govern all aviation activities in the United States.

Computer Testing Supplements

The knowledge testing supplements contain the graphics, legends, and maps that are needed to successfully respond to certain knowledge test items. ODA test center personnel will provide these supplements during the airman knowledge test. You can review them prior to testing at: http://www.faa.gov/training_testing/testing/test_questions/media/FAA-CT-8080-6A.pdf. Marking in the supplement book is prohibited; however, you may request a photo copy of any figure either before or during your exam. This marked or unmarked copy must be returned to the proctor at the end of the exam.

Knowledge Test Centers

The Knowledge Test Centers portion of the Website contains current listings of Airman Knowledge Testing (AKT) Organization Designation Authorization (ODA) Holders and other testing centers, and the registration telephone numbers to call to register for a test.

The following is a list of the ODA holders authorized to give FAA airman knowledge tests. This list should be helpful in case you choose to register for a test or simply want more information.

 [Computer Assisted Testing Service \(CATS\)](#)

777 Mariners Island Blvd., Suite 200
San Mateo, CA 94404

Applicant inquiry and test registration: 1-800-947-4228
From outside the U.S. (650) 259-8550

 [PSI](#)

16821 SE McGillivray Blvd., Suite 201
Vancouver, WA 98683
Applicant inquiry and test registration: 1-800-211-2753 or 1-800-211-2754
From outside the U.S. (360) 896-9111

Knowledge Test Questions

Sample questions are located in the Airman Knowledge Test Questions section of the Website and represent the types of questions included in the actual test banks. Practicing these questions will help you become familiar with similar questions on the airman knowledge tests. The knowledge test is not designed to intimidate any prospective airman; it is designed to measure an applicant's understanding of the rules, regulations and knowledge areas required to receive an FAA certificate.

Knowledge Test Statistics

Test statistics for all airman knowledge tests are contained in a series of tables organized by year and subject area. Individual tables are provided for the following subject areas: test volume, pass rates, average test scores, countries, regions, and district offices.

Practical Test Standards

The practical test standards outline the knowledge and skill requirements for each airman certificate and rating. The references listed in each task of the practical test standards indicate the specific publications used to develop the skill standards. The ability to issue immediate changes prior to publishing revised printed copies ensures the practical test standards are always accurate and usable.

Training Handbooks

The training handbooks are the basic information sources an airman applicant should refer to when preparing for the knowledge and practical tests for a specific certificate or rating.

Classification Code

Topic, Content and Specific (TCS) codes listed in this guide are NOT a description of the Learning Statement Codes (LSC) found in the 'Learning Statement Reference Guide for Airman Knowledge Testing' document, but are a hierarchical sequence of classification codes placing a question in a unique category. FAA knowledge test question development uses the following hierarchy:

- Topic— Overall subject matter topic code. The highest classification of overall subject matter a knowledge test item was developed to assess (e.g., Aerodynamics).
- Content—Secondary level subject matter code (e.g., Airspeed).
- Specific—the basic hierarchical classification code the subject matter for a knowledge test item (e.g., Thrust).

References Appendix

The knowledge tests for Flight Engineer exams are based on the following references.

- 14 CFR part 1 Definitions and Abbreviations
- 14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations
- 14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more
- 14 CFR part 25 Airworthiness Standards: Transport Category Airplanes
- 14 CFR part 61 Certification: Pilots, Flight Instructors, and Ground Instructors
- 14 CFR part 63 Certification: Flight Crewmembers other than Pilots
- 14 CFR part 91 General Operating and Flight Rules
- AC 00-33A - Nickel-Cadmium Battery Op/Man/Overhaul Practices
- AC 00-6 – Aviation Weather
- AC 120-58 – Pilot Guide for Large Aircraft Ground Deicing
- AC 20-117 – Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft
- AC 20-29B - Use of Aircraft Fuel Anti-icing Additive
- AC 43.13-1 - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair
- AC 91-51 – Effect of Icing on Aircraft control and Airplane Deice and Anti-Ice Systems
- AC91-74 – Pilot Guide: Flight in Icing Conditions
- Aerodynamics for Naval Aviators
- Aeronautical Information Manual
- FAA-H-8083-1 – Aircraft Weight and Balance Handbook
- FAA-H-8083-15 – Instrument Flying Handbook
- FAA-H-8083-25 – Pilot's Handbook of Aeronautical Knowledge
- FAA-H-8083-30 – Aviation Maintenance Technician Handbook – General
- FAA-H-8083-31 – Aviation Maintenance Technician Handbook – Airframe
- FAA-H-8083-32 – Aviation Maintenance Technician Handbook – Powerplant
- FAA-H-8083-3A - Airplane Flying Handbook
- Type Certificate Data Sheets and Specifications

Note: The latest revision of these references should be used.

Flight Engineer Turbojet/Basic (FEX)
Sample Questions

FLIGHT ENGINEER TURBOJET/BASIC (FEX)

1. While starting a turbine engine with an air starter, a hung start occurs before the starter disengages. Which procedure is correct?

- A—Shut down the engine.
- B—Increase the air velocity to the starter.
- C—Slowly increase the power lever until the engine accelerates to idle.

Answer: A.

Learning Statement: Recall starter engine-starting procedures.

2. What is the highest ambient temperature that ice is likely to form in the engine inlet?

- A—visibly moist air and +45 °F.
- B—visibly moist air and +70 °F.
- C—relatively dry air and +32 °F.

Answer: A.

Learning Statement: Recall effects of temperature-density altitude/icing.

3. Thermal protectors are used to

- A—stop windshield heaters from melting the glass.
- B—protect motors from overheating.
- C—allow pitot heaters to melt any icing near the tube.

Answer: B.

Learning Statement: Recall electrical system-components/operating principles/characteristics/static bonding and shielding.

4. What recovery would be appropriate in the event of compressor stall?

- A—reduce the thrust lever and then rapidly advance the thrust lever to decrease the angle of attack on the compressor blades, creating more airflow.
- B—reduce the thrust lever and then follow the procedures in the AFM/POH/CFM.
- C—advance the thrust lever slowly to increase airflow and decrease the angle of attack on one or more compressor blades.

Answer: B.

Learning Statement: Recall turbine engines-components/operational characteristics/associated instruments.

5. (Refer to FAA-CT-8080-6A, Figures 46 and 47.) What is the airplane weight at the end of cruise under operating conditions No. 2?

- A—100,860 pounds.
- B—101,900 pounds.
- C—110,900 pounds.

Answer: A.

Learning Statement: Calculate weight and balance.

LIST OF REFERENCE MATERIALS SPECIFIC TO THE FLIGHT ENGINEER TURBOJET/BASIC (FEX)

Topic	Content	Specific
PLT002		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	Airspeed
Aircraft Performance	Limitations	Airspeeds
PLT003		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Center of Gravity	TCDS
	<u>Type Certificate Data Sheets and Specifications</u>	
Weight and Balance	Center of Gravity	TCDS
PLT007		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	EPRs
PLT011		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	EPRs
Aircraft Performance	Charts	Takeoff Power
Aircraft Performance	Charts	Temperature
PLT012		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Computations	NM/1000#
PLT016		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Aircraft Performance	Computations	Fuel Dump
PLT018		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aerodynamics	Principles of Flight	Load Factor
PLT019		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Computations	Cabin Altitude
PLT021		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Aircraft Loading	Definitions
Weight and Balance	Aircraft Loading	Formulas
Weight and Balance	Center of Gravity	% of MAC
Weight and Balance	Center of Gravity	Shifting Weight
Weight and Balance	Center of Gravity	Weight Shift
PLT028		
	<u>14 CFR part 1 Definitions and Abbreviations</u>	
Regulations	14CFR Part 1	Flightcrew Member
PLT041		
	<u>AC 00-6 - Aviation Weather</u>	
Weather	Meteorology	Pressure
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Systems	Flight Instruments	Altimeter
PLT094		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Aircraft Loading	Definitions
PLT108		
	<u>AC 120-58 - Pilot Guide for Large Aircraft Ground Deicing</u>	
Airport Operations	Ground Deicing	Glycol
Airport Operations	Ground Deicing	Glycol Properties / Mixtures
Airport Operations	Ground Deicing	Procedures / Good Practices
Airport Operations	Ground Deicing	Temperature
Airport Operations	Ground Deicing	Types
	<u>AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft</u>	
Airport Operations	Ground Deicing	Temperature
Airport Operations	Ground Deicing	Two Step Deice / Anti-ice

PLT109		
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General		
Aircraft Systems	Electrical	Batteries / Maintenance / Hazards
PLT110		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Landing Gear	Brake System Operation and Components
Aircraft Systems	Landing Gear	Brakes
PLT114		
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General		
Airport Operations	Preflight	Aluminum Corrosion
Airport Operations	Preflight	Self-Locking Nuts
PLT118		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Regulations	14CFR Part 121	Emergency Instruments
PLT124		
AC 00-6 - Aviation Weather		
Aircraft Performance	Atmospheric Effects	Atmospheric Density
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Performance	Atmospheric Effects	Airspeed
PLT128		
AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing		
Weather	Hazardous	Icing
PLT132		
14 CFR part 1 Definitions and Abbreviations		
Regulations	14CFR Part 1	V speeds
Regulations	14CFR Part 1	V2
Aeronautical Information Manual		
Weather	Meteorology	Pressure
PLT135		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Performance	Charts	Cabin Pressure Altitude
Aircraft Systems	Environmental	Pressurization / Valves / Controls / Operation
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Pressurization / Valves / Controls / Operation
PLT136		
AC 91-51 - Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems		
Aircraft Systems	Powerplant	Turbine Characteristics
PLT137		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Vapor Cycling
Cooling/Component/Operation/Servicing		
PLT138		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Landing Gear	Fusible Plugs
Aircraft Systems	Landing Gear	Tires
Aircraft Systems	Landing Gear	Wheels
PLT139		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Aircraft Systems	Landing Gear	Retracted Safety / Warning System
Regulations	14CFR Part 121	TAWS
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Fire Control	Sensors / Testing / Operation
PLT166		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Pressure
Aeronautical Information Manual		
Aircraft Systems	Flight Instruments	Altimeter
Instrument Procedures	En Route	Altimeter Setting Procedures
PLT168		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aerodynamics	Principles of Flight	Angle of Attack
Aerodynamics	Principles of Flight	Forces Acting on Aircraft

PLT173		
<u>AC 00-6 - Aviation Weather</u>		
Weather	Meteorology	Atmosphere
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Weather	Meteorology	Atmosphere
Weather	Meteorology	Pressure
PLT174		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Flight Controls / Secondary	Yaw Dampner
PLT196		
<u>Aeronautical Information Manual</u>		
Weather	Aeronautical Weather Reports	ATIS
PLT203		
<u>AC 00-6 - Aviation Weather</u>		
Weather	Meteorology	Atmosphere
Weather	Meteorology	High Altitude
PLT205		
<u>14 CFR part 91 General Operating and Flight Rules</u>		
Regulations	14CFR Part 91	Alcohol / Drug Limitations
PLT206		
<u>AC 91-74 - Pilot Guide: Flight in Icing Conditions</u>		
Aircraft Systems	De-Icing / Anti-Icing	Intake / Carburetor Icing
PLT207		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Emergency Lights
<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches
Aircraft Systems	Electrical	Generators / Alternators / Controls / Systems
Aircraft Systems	Electrical	Properties
PLT208		
<u>Aeronautical Information Manual</u>		
Flight Operations	Emergency Procedures	Declare an Emergency
Flight Operations	Emergency Procedures	Hijacking
PLT209		
<u>AC 91-74 - Pilot Guide: Flight in Icing Conditions</u>		
Aircraft Systems	Powerplant	Engine Instruments
PLT210		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Engine Operation
Aircraft Systems	Powerplant	Turbine Components / Functions
PLT212		
<u>14 CFR part 1 Definitions and Abbreviations</u>		
Regulations	14CFR Part 1	Definitions
<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>		
Flight Operations	Emergency Procedures	Electrical Fires
Flight Operations	Emergency Procedures	Flammable Fluid Fires
Flight Operations	Emergency Procedures	Ground Emergencies
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Fire Control	Extinguishing Agent / System / Preflight
Aircraft Systems	Fire Control	Sensors / Testing / Operation
PLT214		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Flight Characteristics	Swept / Tapered Wing
Aerodynamics	Flight Characteristics	Wing / Airfoil Characteristics
PLT235		
<u>FAA-H-8083-3 - Airplane Flying Handbook</u>		
Aerodynamics	Principles of Flight	Forces Acting on Aircraft
PLT236		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Flight Characteristics	Wing / Airfoil Characteristics
PLT242		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Principles of Flight	Forces Acting on Aircraft

PLT248	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aerodynamics	Principles of Flight		Forces Acting on Aircraft
PLT251			
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General	Fuel / Oil		Fuel Servicing
Aircraft Systems	Fuel / Oil		Specifications
Aircraft Systems	Powerplant		Fuel Requirements
PLT252			
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General	Fuel / Oil		Fuel Specifications
Aircraft Systems	Fuel / Oil		
PLT253			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	Fuel / Oil		Fuel Boost Bumps
Aircraft Systems	Fuel / Oil		Fuel Heat
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Fuel / Oil		Fuel Heat
PLT266			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Airfoils		Slots
PLT273			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	Hydraulic		Accumulators
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Aircraft Systems	Hydraulic		Hazards
Aircraft Systems	Hydraulic		Specifications
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AC 00-6 - Aviation Weather	Meteorology		Icing
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PLT278			
AC 91-51 - Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems			
Aircraft Systems	De-Icing / Anti-Icing		Intake / Carburetor Icing
Aerodynamics for Naval Aviators			
Aircraft Performance	Atmospheric Effects		Temperature
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Flight Instruments		Mach Meter
PLT303			
Aerodynamics for Naval Aviators	Principles of Flight		Angle of Attack
PLT305			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Airfoils		High Lift Devices
Aerodynamics			
PLT310			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Load Factor		Atmospheric Criteria
Aerodynamics	Performance		Weights / V Speeds / Runway Lengths
PLT313			
FAA-H-8083-1 - Weight and Balance Handbook	Aircraft Loading		Definitions
Weight and Balance			
PLT318			
Aeronautical Information Manual	Normal Procedures		Minimum Fuel Advisory
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PLT324			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Fuel / Oil		Oil System
Aircraft Systems	Fuel / Oil		Oil System Failure Modes
PLT326			
Aeronautical Information Manual	Aeromedical		Oxygen Mask Operation
Human Factors			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Environmental		Oxygen
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Aircraft Systems	Environmental		Gaseous Oxygen
Aircraft Systems	Environmental		Oxygen

PLT327	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Systems	Environmental	Oxygen
PLT338		
Aircraft Systems	Pneumatics	Pneumatics
PLT343		
Aircraft Performance	Atmospheric Effects	Temperature
Aircraft Performance	Density Altitude	Humidity / Temperature / Air Density
PLT346		
Aircraft Systems	Flight Controls / Primary	Ailerons
PLT347		
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PLT368		
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Regulations	14CFR Part 121	Required Documents for Flight
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Regulations	14CFR Part 121	Flashlight
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Regulations	14CFR Part 121	Deadhead / Duty Time
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Regulations	14CFR Part 121	Flag Operations
Regulations	14CFR Part 121	Rest Periods

PLT410[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Recency of Experience

[14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more](#)

Regulations 14CFR Part 125 Part 91 Operations

[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations 14CFR Part 63 Suspension or Revocation

PLT413[14 CFR part 25 Airworthiness Standards: Transport Category Airplanes](#)

Regulations 14CFR Part 25 Fuel Jettisoning

PLT427[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations 14CFR Part 63 Required Certificates

PLT438[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Preflight

Regulations 14CFR Part 121 Supplemental Oxygen

PLT439[14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more](#)

Regulations 14CFR Part 125 Maintenance Tasks

PLT440[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Crew Duty Stations

Regulations 14CFR Part 121 Critical Phase of Flight

Regulations 14CFR Part 121 Emergency Evacuation Duties

PLT443[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Qualifications

PLT444[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Maintenance Log Entries

PLT447[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations 14CFR Part 63 Medical Certificate Duration

Regulations 14CFR Part 67 Medical Deficiency

PLT448[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations 14CFR Part 63 Certificate

PLT449[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 IOE

Regulations 14CFR Part 121 Testing Prerequisites

PLT451[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Qualifications

PLT460[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 High Altitude Physiology

Regulations 14CFR Part 121 Qualifications

PLT462[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Emergency Equipment

PLT463[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations 14CFR Part 63 Alcohol / Drug Testing

Regulations 14CFR Part 63 Drug / Alcohol Convictions

Regulations 14CFR Part 63 Suspension or Revocation

PLT464[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Crew Duty Stations

PLT473		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Systems	Flight Controls / Secondary	Servo Tabs
Aircraft Systems	Flight Controls / Secondary	Trim Tabs
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Flight Controls / Secondary	Servo Tabs
Aircraft Systems	Flight Controls / Secondary	Tabs
PLT479		
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		
Aircraft Systems	Powerplant	Engine Start
Aircraft Systems	Powerplant	Starting
PLT480		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aerodynamics	Flight Characteristics	Stability / Control
PLT492		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Air Masses
PLT493		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Icing
AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft		
Weather	Hazardous	Icing
FAA-H-8083-15 - Instrument Flying Handbook		
Weather	Hazardous	Icing
PLT495		
AC 00-6 - Aviation Weather		
Aircraft Systems	Electrical	Static Wicks / Lightning Protection / Bonding
PLT497		
Aeronautical Information Manual		
Flight Operations	Emergency Procedures	Declare an Emergency
Publications	AIM	Transponder Operation
PLT499		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Systems	Powerplant	Turbine Components / Functions
FAA-H-8083-3 - Airplane Flying Handbook		
Aircraft Systems	Powerplant	Turbine Characteristics
Aircraft Systems	Powerplant	Turbine Compressors
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		
Aircraft Systems	Powerplant	Engine Instruments
Aircraft Systems	Powerplant	Engine Operation
Aircraft Systems	Powerplant	Starting
Aircraft Systems	Powerplant	Turbine Components / Functions
Aircraft Systems	Powerplant	Turbine Compressors
Aircraft Systems	Powerplant	Turbine Sensors
PLT502		
Aeronautical Information Manual		
Publications	AIM	Light Gun Signals
PLT509		
Aeronautical Information Manual		
Aerodynamics	Flight Characteristics	Vortex Generation
PLT523		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aerodynamics	Airfoils	Vortex Generators
PLT525		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Systems	Environmental	Oxygen

**Flight Engineer Turboprop/Basic (FET)
Sample Questions**

FLIGHT ENGINEER TURBOPROP/BASIC (FET)

1. During flight with zero angle of attack, the pressure along the upper surface of the wing will be

- A—equal to atmospheric pressure.
- B—less than atmospheric pressure.
- C—greater than the pressure below the wing.

Answer: B.

Learning Statement: Recall angle of attack-characteristics/forces/principles.

2. Oil extracts the most heat from which turbine engine components?

- A—Turbine bearings.
- B—Compressor bearings.
- C—Accessory drive bearings.

Answer: A.

Learning Statement: Recall powerplant-controlling engine temperature.

3. Why should hydraulic fluid be filtered?

- A—Water in the fluid could freeze.
- B—It assures a positive feed of foam free fluid to the hydraulic pump inlet.
- C—Contaminants may damage the seals and cylinder walls causing internal leakage.

Answer: C.

Learning Statement: Recall hydraulic systems-components/operating principles/characteristics.

4. What precaution should be taken when using truck-mounted deice/anti-ice equipment?

- A—Run the airplane engines at idle.
- B—Spray engine and APU inlets directly.
- C—Spray pitot inlets and static ports indirectly.

Answer: C.

Learning Statement: Recall aircraft anti-icing/deicing-methods/fluids.

5. Which maintenance task may a flight engineer perform while operating under 14 CFR part 125?

- A—Landing light replacement if there is no certificated mechanic available.
- B—Remove, inspect, and replace a chip detector if the malfunction occurs in a remote area.
- C—Replenish hydraulic fluid in accordance with applicable regulations and the certificate holder's manuals.

Answer: C.

Learning Statement: Recall regulations-persons authorized to perform maintenance.

LIST OF REFERENCE MATERIALS SPECIFIC TO THE FLIGHT ENGINEER TURBOPROP/BASIC (FET)

Topic	Content	Specific
PLT002		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Atmospheric Effects	Airspeed
Aircraft Performance	Limitations	Airspeeds
PLT003		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Center of Gravity	TCDS
	<u>Type Certificate Data Sheets and Specifications</u>	
Weight and Balance	Center of Gravity	TCDS
PLT011		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	Take Off Power
Aircraft Performance	Charts	Takeoff / Landing / Alternate Values
Aircraft Performance	Charts	Takeoff Power
Aircraft Performance	Charts	Temperature
PLT012		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Computations	Fuel
PLT016		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Aircraft Performance	Computations	Fuel Dump
PLT018		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aerodynamics	Principles of Flight	Load Factor
PLT019		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	Cabin Altitude
Aircraft Performance	Computations	Cabin Altitude
PLT021		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Aircraft Loading	Definitions
Weight and Balance	Aircraft Loading	Formulas
Weight and Balance	Aircraft Loading	Limitations
Weight and Balance	Center of Gravity	Computations
Weight and Balance	Center of Gravity	Shifting Weight
PLT026		
	<u>FAA-H-8083-3 - Airplane Flying Handbook</u>	
Aerodynamics	Performance	Atmospheric Effects / Density / Pressure
Altitudes		
PLT028		
	<u>14 CFR part 1 Definitions and Abbreviations</u>	
Regulations	14CFR Part 1	Flightcrew Member
PLT038		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	Torque in Inch-Pounds
PLT041		
	<u>AC 00-6 - Aviation Weather</u>	
Weather	Meteorology	Pressure
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Systems	Flight Instruments	Altimeter
PLT108		
	<u>AC 120-58 - Pilot Guide for Large Aircraft Ground Deicing</u>	
Airport Operations	Ground Deicing	Glycol
Airport Operations	Ground Deicing	Glycol Properties / Mixtures
Airport Operations	Ground Deicing	Procedures / Good Practices
Airport Operations	Ground Deicing	Temperature
Airport Operations	Ground Deicing	Types

PLT109	FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General	
Aircraft Systems	Electrical	Batteries / Maintenance / Hazards
PLT114		
Airport Operations	Preflight	Aluminum Corrosion
Airport Operations	Preflight	Self-Locking Nuts
PLT118		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Regulations	14CFR Part 121	Emergency Instruments
PLT124		
AC 00-6 - Aviation Weather		
Aircraft Performance	Atmospheric Effects	Atmospheric Density
PLT128		
AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing		
Weather	Hazardous	Icing
PLT132		
14 CFR part 1 Definitions and Abbreviations		
Regulations	14CFR Part 1	V speeds
PLT135		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Performance	Charts	Cabin Altitude
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Pressurization / Valves / Controls / Operation
PLT137		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Vapor Cycling
Cooling/Component/Operation/Servicing		
PLT138		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Landing Gear	Fusible Plugs
Aircraft Systems	Landing Gear	Wheels
PLT139		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Aircraft Systems	Landing Gear	Retracted Safety / Warning System
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Fire Control	Sensors / Testing / Operation
Aircraft Systems	Landing Gear	Retracted Safety / Warning System
PLT164		
FAA-H-8083-3 - Airplane Flying Handbook		
Aerodynamics	Airspeed	Wind Effects
PLT166		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Pressure
Aeronautical Information Manual		
Instrument Procedures	En Route	Altimeter Setting Procedures
PLT168		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aerodynamics	Principles of Flight	Angle of Attack
Aerodynamics	Principles of Flight	Forces Acting on Aircraft
PLT173		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Weather	Meteorology	Pressure
PLT203		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Atmosphere
PLT205		
14 CFR part 91 General Operating and Flight Rules		
Regulations	14CFR Part 91	Alcohol / Drug Limitations
PLT207		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches
Regulations	14CFR Part 121	Emergency Lights
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches
Aircraft Systems	Electrical	Generators / Alternators / Controls / Systems

PLT210	FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		
Aircraft Systems	Powerplant		Engine Operation
Aircraft Systems	Powerplant		Turbine Components / Functions
PLT212			
14 CFR part 1 Definitions and Abbreviations			Definitions
Regulations	14CFR Part 1		
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General			
Flight Operations	Emergency Procedures		Electrical Fires
Flight Operations	Emergency Procedures		Flammable Fluid Fires
Flight Operations	Emergency Procedures		Ground Emergencies
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			Extinguishing Agent / System / Preflight
Aircraft Systems	Fire Control		
PLT235			
FAA-H-8083-3 - Airplane Flying Handbook			Forces Acting on Aircraft
Aerodynamics	Principles of Flight		
PLT236			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			Forces Acting on Aircraft
Aerodynamics	Principles of Flight		
PLT242			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			Forces Acting on Aircraft
Aerodynamics	Principles of Flight		
PLT243			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			Centrifugal Twisting
Aircraft Systems	Propeller		
PLT251			
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General			Fuel Servicing
Aircraft Systems	Fuel / Oil		Specifications
Aircraft Systems	Fuel / Oil		
PLT253			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			Fuel Boost Bumps
Aircraft Systems	Fuel / Oil		
PLT273			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			Accumulators
Aircraft Systems	Hydraulic		Filters / System
Aircraft Systems	Hydraulic		Specifications
Aircraft Systems	Hydraulic		System Operation
PLT274			
AC 00-6 - Aviation Weather			Icing
Weather	Meteorology		
AC 91-74 - Pilot Guide: Flight in Icing Conditions			Ambient Temperature
Aircraft Systems	De-Icing / Anti-Icing		
PLT278			
Aerodynamics for Naval Aviators			Temperature
Aircraft Performance	Atmospheric Effects		
PLT310			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			Atmospheric Criteria
Aerodynamics	Load Factor		Weights / V Speeds / Runway Lengths
Aerodynamics	Performance		
PLT313			
FAA-H-8083-1 - Weight and Balance Handbook			Definitions
Weight and Balance	Aircraft Loading		
PLT318			
Aeronautical Information Manual			Minimum Fuel Advisory
Flight Operations	Normal Procedures		
PLT324			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			Oil System
Aircraft Systems	Fuel / Oil		Oil System Failure Modes
Aircraft Systems	Fuel / Oil		

PLT326		
<u>Aeronautical Information Manual</u>		
Human Factors	Aeromedical	Oxygen Mask Operation
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Environmental	Oxygen
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Environmental	Oxygen
PLT327		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Environmental	Oxygen
PLT338		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Pneumatics	Pneumatics
Aircraft Systems	Pneumatics	Servicing
PLT342		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Turbine Compressors
PLT343		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Performance	Atmospheric Effects	Temperature
Aircraft Performance	Density Altitude	Humidity / Temperature / Air Density
PLT346		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Flight Controls / Primary	Ailerons
PLT347		
<u>14 CFR part 1 Definitions and Abbreviations</u>	14CFR Part 1	Definitions
Regulations		
PLT351		
<u>FAA-H-8083-3 - Airplane Flying Handbook</u>		
Aircraft Systems	Propeller	Feathering
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Propeller	Beta Range
Aircraft Systems	Propeller	Feathering
Aircraft Systems	Propeller	Governor Operation
Aircraft Systems	Propeller	Propeller Forces
Aircraft Systems	Propeller	Stresses
Aircraft Systems	Propeller	Unfeathering
PLT385		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Cargo / Passenger Compartment
<u>14 CFR part 91 General Operating and Flight Rules</u>		
Regulations	14CFR Part 125	Part 91 Operations
PLT386		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	International Crewmember Certificates
<u>14 CFR part 63 Certification: Flight Crewmembers other than Pilots</u>		
Regulations	14CFR Part 63	Certificate
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<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Cockpit Voice Recorders
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<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Dispatch Contents
PLT404		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Emergency Equipment
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<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	MEL/CDL
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<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	IOE

PLT409[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Deadhead / Duty Time
Regulations	14CFR Part 121	Duty Time Limitations
Regulations	14CFR Part 121	Rest Periods

PLT410[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Recency of Experience
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[14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more](#)

Regulations	14CFR Part 125	Part 91 Operations
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PLT413[14 CFR part 25 Airworthiness Standards: Transport Category Airplanes](#)

Regulations	14CFR Part 25	Fuel Jettisoning
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PLT438[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Preflight
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Regulations	14CFR Part 121	Supplemental Oxygen
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PLT439[14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more](#)

Regulations	14CFR Part 125	Maintenance Tasks
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PLT440[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Crew Duty Stations
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Regulations	14CFR Part 121	Critical Phase of Flight
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Regulations	14CFR Part 121	Emergency Evacuation Duties
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PLT442[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Qualifications
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PLT444[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Maintenance Log Entries
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PLT447[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Medical Certificate Duration
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Regulations	14CFR Part 67	Medical Deficiency
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PLT448[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Certificate
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PLT460[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	High Altitude Physiology
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Regulations	14CFR Part 121	Qualifications
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PLT462[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Emergency Equipment
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PLT463[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Alcohol / Drug Testing
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Regulations	14CFR Part 63	Drug / Alcohol Convictions
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Regulations	14CFR Part 63	Suspension or Revocation
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PLT464[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Crew Duty Stations
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PLT473[FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge](#)

Aircraft Systems	Flight Controls / Secondary	Spoilers
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Aircraft Systems	Flight Controls / Secondary	Trim Tabs
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PLT478[FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant](#)

Aircraft Systems	Powerplant	Starters
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PLT479[FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant](#)

Aircraft Systems	Powerplant	Starters
Aircraft Systems	Powerplant	Starting

PLT493[AC 00-6 - Aviation Weather](#)

Weather	Meteorology	Icing
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[AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing](#)

Weather	Hazardous	Icing
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[FAA-H-8083-15 - Instrument Flying Handbook](#)

Weather	Hazardous	Icing
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PLT497[Aeronautical Information Manual](#)

Publications	AIM	Transponder Operation
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PLT499[FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge](#)

Aircraft Systems	Powerplant	Turbine Characteristics
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[FAA-H-8083-3 - Airplane Flying Handbook](#)

Aircraft Systems	Powerplant	Turbine Characteristics
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[FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant](#)

Aircraft Systems	Powerplant	Engine Instruments
Aircraft Systems	Powerplant	Starting
Aircraft Systems	Powerplant	Turbine Components / Functions

PLT502[Aeronautical Information Manual](#)

Publications	AIM	Light Gun Signals
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PLT523[FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe](#)

Aerodynamics	Airfoils	Vortex Generators
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**Flight Engineer Reciprocating Engine/Basic (FEN)
Sample Questions**

FLIGHT ENGINEER RECIPROCATING ENGINE/BASIC (FEN)

1. Which of the following is considered an auxiliary flight control?

- A—Ruddervator.
- B—Upper rudder.
- C—Leading-edge flaps.

Answer: C.

Learning Statement: Recall secondary flight controls –types/purpose/functionality.

2. What is the primary source of directional stability for an airplane?

- A—CG position.
- B—Vertical tail.
- C—Horizontal tail.

Answer: B.

Learning Statement: Recall forces acting on aircraft-stability/controllability.

3. What is the purpose of electrical bonding jumpers?

- A—Decrease the probability of lightning damage to such elements as control hinges.
- B—Minimize electrolytic corrosion by connecting the airplane parts to form an integral unit.
- C—Provide a high-resistance path for electrical equipment, thereby eliminating ground wires.

Answer: A.

Learning Statement: Recall aircraft performance-atmospheric effects.

4. Which type of oxygen system is the flight deck equipped with normally?

- A—Constant-flow.
- B—Phase dilution.
- C—Diluter-demand.

Answer: C.

Learning Statement: Recall oxygen system-components/operating principles/characteristics.

5. (Refer to FAA-CT-8080-6A, Figure 40.) What is the loaded CG in percent of MAC under operating conditions No. 1?

- A—28.9 percent.
- B—30.5 percent.
- C—32.9 percent.

Answer: B.

Learning Statement: Calculate weight and balance.

LIST OF REFERENCE MATERIALS SPECIFIC TO THE FLIGHT ENGINEER RECIPROCATING ENGINE/BASIC (FEN)

Topic	Content	Specific
PLT002		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Atmospheric Effects	Airspeed
Aircraft Performance	Charts	Airspeed
Aircraft Performance	Limitations	Airspeeds
PLT003		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Center of Gravity	TCDS
	<u>Type Certificate Data Sheets and Specifications</u>	
Weight and Balance	Center of Gravity	TCDS
PLT011		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	Takeoff / Landing / Alternate Values
Aircraft Performance	Charts	Takeoff Power
PLT012		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Computations	Flight Computations
Aircraft Performance	Computations	Fuel
PLT016		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Aircraft Performance	Computations	Fuel Dump
PLT018		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aerodynamics	Principles of Flight	Load Factor
PLT019		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Performance	Charts	Cabin Altitude
PLT021		
	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>	
Weight and Balance	Aircraft Loading	Computations
Weight and Balance	Aircraft Loading	Definitions
Weight and Balance	Aircraft Loading	Formulas
Weight and Balance	Center of Gravity	Computations
Weight and Balance	Center of Gravity	Shifting Weight
PLT026		
	<u>FAA-H-8083-3 - Airplane Flying Handbook</u>	
Aerodynamics	Performance	Atmospheric Effects / Density / Pressure
Altitudes		
PLT028		
	<u>14 CFR part 1 Definitions and Abbreviations</u>	
Regulations	14CFR Part 1	Flightcrew Member
PLT041		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aircraft Systems	Flight Instruments	Altimeter
PLT094		
	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	
Aerodynamics	Principles of Flight	Forces Acting on Aircraft
PLT108		
	<u>AC 120-58 - Pilot Guide for Large Aircraft Ground Deicing</u>	
Airport Operations	Ground Deicing	Glycol
Airport Operations	Ground Deicing	Glycol Properties / Mixtures
Airport Operations	Ground Deicing	Temperature
Airport Operations	Ground Deicing	Types
	<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>	
Aircraft Systems	Propeller	Deicing Boots
PLT109		
	<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>	
Aircraft Systems	Electrical	Batteries / Maintenance / Hazards

PLT114	FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General		
Airport Operations	Preflight		Aluminum Corrosion
Airport Operations	Preflight		Self-Locking Nuts
PLT115			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Fuel / Oil		Water Injection
Aircraft Systems	Powerplant		Detonation
Aircraft Systems	Powerplant		Improper Combustion
Aircraft Systems	Powerplant		Mixtures
PLT124			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Powerplant		Humidity Effects
PLT128			
AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing			
Weather	Hazardous		Icing
PLT134			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Powerplant		Mixtures
PLT135			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Performance	Charts		Cabin Altitude
Aircraft Performance	Charts		Cabin Pressure Altitude
Aircraft Systems	Environmental		Pressurization / Valves / Controls / Operation
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Environmental		Pressurization / Valves / Controls / Operation
PLT138			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Landing Gear		Fusible Plugs
Aircraft Systems	Landing Gear		Wheels
PLT139			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Landing Gear		Retracted Safety / Warning System
PLT164			
FAA-H-8083-3 - Airplane Flying Handbook			
Aerodynamics	Airspeed		Wind Effects
PLT166			
Aeronautical Information Manual			
Aircraft Systems	Flight Instruments		Altimeter
Instrument Procedures	En Route		Altimeter Setting Procedures
PLT168			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aerodynamics	Principles of Flight		Angle of Attack
Aerodynamics	Principles of Flight		Forces Acting on Aircraft
PLT173			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Weather	Meteorology		Pressure
PLT189			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Powerplant		Intake / Carb / Inlet Heat
PLT190			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	De-Icing / Anti-Icing		Intake / Carburetor Icing
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	De-Icing / Anti-Icing		Intake / Carburetor Icing
PLT205			
14 CFR part 91 General Operating and Flight Rules			
Regulations	14CFR Part 91		Alcohol / Drug Limitations

PLT207	<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches	
Regulations	14CFR Part 121	Emergency Lights	
<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>			
Aircraft Systems	Electrical	Batteries / Maintenance / Hazards	
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches	
Aircraft Systems	Electrical	Generators / Alternators / Controls / Systems	
PLT212	<u>14 CFR part 1 Definitions and Abbreviations</u>		
Regulations	14CFR Part 1	Definitions	
<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>			
Flight Operations	Emergency Procedures	Electrical Fires	
Flight Operations	Emergency Procedures	Flammable Fluid Fires	
PLT234	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Principles of Flight	CG	
PLT235	<u>FAA-H-8083-3 - Airplane Flying Handbook</u>		
Aerodynamics	Principles of Flight	Forces Acting on Aircraft	
PLT248	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Principles of Flight	Forces Acting on Aircraft	
PLT249	<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Improper Combustion	
Aircraft Systems	Powerplant	Mixtures	
PLT251	<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Water Injection	
PLT253	<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Fuel / Oil	Fuel Boost Bumps	
Aircraft Systems	Fuel / Oil	Fuel System	
PLT273	<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Hydraulic	Accumulators	
Aircraft Systems	Hydraulic	Filters / System	
Aircraft Systems	Hydraulic	Specifications	
Aircraft Systems	Hydraulic	System Operation	
PLT303	<u>Aerodynamics for Naval Aviators</u>		
Aerodynamics	Principles of Flight	Angle of Attack	
PLT310	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Load Factor	Atmospheric Criteria	
PLT313	<u>FAA-H-8083-1 - Weight and Balance Handbook</u>		
Weight and Balance	Aircraft Loading	Definitions	
PLT318	<u>Aeronautical Information Manual</u>		
Flight Operations	Normal Procedures	Minimum Fuel Advisory	
PLT324	<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Fuel / Oil	Oil System	
PLT326	<u>Aeronautical Information Manual</u>		
Human Factors	Aeromedical	Oxygen Mask Operation	
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>			
Aircraft Systems	Environmental	Oxygen	
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>			
Aircraft Systems	Environmental	Oxygen	
PLT327	<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Environmental	Oxygen	

PLT331		
<u>Aeronautical Information Manual</u>		
Human Factors	Aeromedical	Diving Decompression
PLT338		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Pneumatics	Pneumatics
Aircraft Systems	Pneumatics	Servicing
PLT342		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Exhaust Systems
PLT343		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Performance	Atmospheric Effects	Temperature
Aircraft Performance	Density Altitude	Humidity / Temperature / Air Density
Aircraft Systems	Powerplant	Superchargers
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Engine Problems / Failure Modes
Aircraft Systems	Powerplant	Water Injection
PLT346		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Flight Controls / Primary	Ailerons
PLT347		
<u>14 CFR part 1 Definitions and Abbreviations</u>		
Regulations	14CFR Part 1	Definitions
PLT351		
<u>FAA-H-8083-3 - Airplane Flying Handbook</u>		
Aircraft Systems	Propeller	Feathering
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Propeller	Deicing
Aircraft Systems	Propeller	Feathering
Aircraft Systems	Propeller	Governor Operation
Aircraft Systems	Propeller	Propeller Forces
Aircraft Systems	Propeller	Stresses
Aircraft Systems	Propeller	Unfeathering
PLT365		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Powerplant	Engine Instruments
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Specifications
PLT368		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Admission to Flight Deck
PLT385		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Cargo / Passenger Compartment
<u>14 CFR part 91 General Operating and Flight Rules</u>		
Regulations	14CFR Part 125	Part 91 Operations
PLT386		
<u>14 CFR part 63 Certification: Flight Crewmembers other than Pilots</u>		
Regulations	14CFR Part 63	Certificate
PLT388		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Cockpit Voice Recorders
PLT389		
<u>14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more</u>		
Regulations	14CFR Part 119	Private Carriage / Non-common
PLT400		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Required Documents for Flight
PLT404		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Emergency Equipment
Regulations	14CFR Part 121	Emergency Lights

PLT405[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Flashlight
Regulations	14CFR Part 121	MEL/CDL

PLT407[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	IOE
Regulations	14CFR Part 121	Recurrent Training

PLT409[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Duty Time Limitations
Regulations	14CFR Part 121	Flag Operations
Regulations	14CFR Part 121	Rest Periods

PLT410[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	IOE
Regulations	14CFR Part 121	Recency of Experience

[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Suspension or Revocation
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PLT413[14 CFR part 25 Airworthiness Standards: Transport Category Airplanes](#)

Regulations	14CFR Part 25	Fuel Jettisoning
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PLT438[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Supplemental Oxygen
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PLT439[14 CFR part 125 Certification and Operations: Airplanes having seating capacity of 20 or more](#)

Regulations	14CFR Part 125	Maintenance Tasks
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PLT440[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Crew Duty Stations
Regulations	14CFR Part 121	Critical Phase of Flight
Regulations	14CFR Part 121	Emergency Evacuation Duties

PLT442[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Qualifications
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PLT443[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Qualifications
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PLT444[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Maintenance Log Entries
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PLT447[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Medical Certificate Duration
Regulations	14CFR Part 67	Medical Deficiency

PLT448[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Certificate
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PLT451[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Qualifications
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PLT460[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Qualifications
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PLT462[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations	14CFR Part 121	Emergency Equipment
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PLT463[14 CFR part 63 Certification: Flight Crewmembers other than Pilots](#)

Regulations	14CFR Part 63	Alcohol / Drug Testing
Regulations	14CFR Part 63	Drug / Alcohol Convictions
Regulations	14CFR Part 63	Suspension or Revocation

PLT464

[14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations](#)

Regulations 14CFR Part 121 Crew Duty Stations

PLT479

[FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant](#)

Aircraft Systems Powerplant Preflight / Hydraulic Lock

PLT480

[FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge](#)

Aerodynamics Flight Characteristics Stability / Control

PLT483

[FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge](#)

Aircraft Systems Powerplant Superchargers

PLT493

[AC 00-6 - Aviation Weather](#)

Weather Meteorology Icing

[FAA-H-8083-15 - Instrument Flying Handbook](#)

Weather Hazardous Icing

PLT497

[Aeronautical Information Manual](#)

Publications AIM Transponder Operation

PLT502

[Aeronautical Information Manual](#)

Publications AIM Light Gun Signals

PLT509

[Aeronautical Information Manual](#)

Aerodynamics Flight Characteristics Vortex Generation

Flight Engineer Turbojet-Added Rating (FEJ)
Sample Questions

FLIGHT ENGINEER TURBOJET-ADDED RATING (FEJ)

1. While starting a turbine engine with an air starter, a hung start occurs before the starter disengages. Which procedure is correct?

- A—Shut down the engine.
- B—Increase the air velocity to the starter.
- C—Slowly increase the power lever until the engine accelerates to idle.

Answer: A.

Learning Statement: Recall starter engine-starting procedures.

2. What is the highest ambient temperature that ice is likely to form in the engine inlet?

- A—visibly moist air and +45 °F.
- B—visibly moist air and +70 °F.
- C—relatively dry air and +32 °F.

Answer: A.

Learning Statement: Recall effects of temperature-density altitude/icing.

3. Thermal protectors are used to

- A—stop windshield heaters from melting the glass.
- B—protect motors from overheating.
- C—allow pitot heaters to melt any icing near the tube.

Answer: B.

Learning Statement: Recall electrical system-components/operating principles/characteristics/static bonding and shielding.

4. What recovery would be appropriate in the event of compressor stall?

- A—reduce the thrust lever and then rapidly advance the thrust lever to decrease the angle of attack on the compressor blades, creating more airflow.
- B—reduce the thrust lever and then follow the procedures in the AFM/POH/CFM.
- C—advance the thrust lever slowly to increase airflow and decrease the angle of attack on one or more compressor blades.

Answer: B.

Learning Statement: Recall turbine engines-components/operational characteristics/associated instruments.

5. (Refer to FAA-CT-8080-6A, Figures 46 and 47.) What is the airplane weight at the end of cruise under operating conditions No. 2?

- A—100,860 pounds.
- B—101,900 pounds.
- C—110,900 pounds.

Answer: A.

Learning Statement: Calculate weight and balance.

LIST OF REFERENCE MATERIALS SPECIFIC TO THE FLIGHT ENGINEER TURBOJET-ADDED RATING (FEJ)

Topic	Content	Specific
PLT002		
	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Performance	Atmospheric Effects	Airspeed
Aircraft Performance	Charts	Airspeed
PLT007		
	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Performance	Charts	EPRs
PLT011		
	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Performance	Charts	Temperature
PLT012		
	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Performance	Computations	NM/1000#
PLT016		
	FAA-H-8083-1 - Weight and Balance Handbook	
Aircraft Performance	Computations	Fuel Dump
PLT021		
	FAA-H-8083-1 - Weight and Balance Handbook	
Weight and Balance	Aircraft Loading	Computations
Weight and Balance	Aircraft Loading	Formulas
Weight and Balance	Center of Gravity	Computations
Weight and Balance	Center of Gravity	Shifting Weight
PLT108		
	AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft	
Airport Operations	Ground Deicing	Two Step Deice / Anti-ice
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Rain
PLT109		
	FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General	
Aircraft Systems	Electrical	Batteries / Maintenance / Hazards
PLT110		
	FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	
Aircraft Systems	Landing Gear	Brake System Operation and Components
Aircraft Systems	Landing Gear	Brakes
PLT124		
	AC 00-6 - Aviation Weather	
Aircraft Performance	Atmospheric Effects	Atmospheric Density
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aircraft Performance	Atmospheric Effects	Airspeed
PLT128		
	AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft	
Weather	Hazardous	Icing
PLT135		
	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Performance	Charts	Cabin Altitude
Aircraft Performance	Charts	Cabin Pressure Altitude
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Pressurization / Valves / Controls / Operation
PLT136		
	AC 91-51 - Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems	
Aircraft Systems	Powerplant	Turbine Characteristics
PLT137		
	FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	
Aircraft Systems	Environmental	Vapor Cycling
Cooling/Component/Operation/Servicing		
PLT138		
	FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	
Aircraft Systems	Landing Gear	Chine Tires
Aircraft Systems	Landing Gear	Tires

PLT139	FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Fire Control	Sensors / Testing / Operation	
PLT174			
Aircraft Systems	Flight Controls / Secondary	Yaw Dampner	
PLT203			
Weather	Meteorology	High Altitude	
PLT207			
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General			
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches	
Aircraft Systems	Electrical	Generators / Alternators / Controls / Systems	
Aircraft Systems	Electrical	Properties	
PLT208			
Aeronautical Information Manual			
Flight Operations	Emergency Procedures	Hijacking	
PLT209			
AC 91-74 - Pilot Guide: Flight in Icing Conditions			
Aircraft Systems	Powerplant	Engine Instruments	
PLT210			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Powerplant	Engine Operation	
Aircraft Systems	Powerplant	Turbine Components / Functions	
PLT212			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Fire Control	Extinguishing Agent / System / Preflight	
PLT214			
Aerodynamics for Naval Aviators			
Aerodynamics	Flight Characteristics	Swept / Tapered Wing	
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aerodynamics	Flight Characteristics	Swept / Tapered Wing	
Aerodynamics	Flight Characteristics	Wing / Airfoil Characteristics	
Aerodynamics	Stability / Control	Dutch Roll	
PLT236			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aerodynamics	Flight Characteristics	Wing / Airfoil Characteristics	
PLT251			
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General			
Aircraft Systems	Fuel / Oil	Fuel Servicing	
Aircraft Systems	Fuel / Oil	Specifications	
PLT253			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Fuel / Oil	Fuel Heat	
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Fuel / Oil	Fuel Heat	
PLT266			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aerodynamics	Airfoils	Slots	
PLT273			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Hydraulic	Hazards	
Aircraft Systems	Hydraulic	Specifications	
PLT278			
AC 91-51 - Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems			
Aircraft Systems	De-Icing / Anti-Icing	Intake / Carburetor Icing	
Aerodynamics for Naval Aviators			
Aircraft Performance	Atmospheric Effects	Temperature	
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Flight Instruments	Mach Meter	
PLT305			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aerodynamics	Airfoils	High Lift Devices	

PLT315		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Airspeed	Mach
PLT318		
<u>Aeronautical Information Manual</u>		
Flight Operations	Normal Procedures	Minimum Fuel Advisory
PLT326		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Environmental	Gaseous Oxygen
PLT342		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Fuel to Oil Heat Exchanger
PLT346		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Flight Controls / Primary	Ailerons
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Flight Controls / Primary	Ailerons
PLT386		
<u>14 CFR part 63 Certification: Flight Crewmembers other than Pilots</u>		
Regulations	14CFR Part 63	Replacement Certificate
PLT407		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Regulations	14CFR Part 121	Initial Training
PLT473		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Flight Controls / Secondary	Servo Tabs
Aircraft Systems	Flight Controls / Secondary	Spoilers
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Flight Controls / Secondary	Servo Tabs
PLT479		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Starters
Aircraft Systems	Powerplant	Starting
Aircraft Systems	Powerplant	Turbine Starting Fire Procedures
PLT493		
<u>AC 00-6 - Aviation Weather</u>		
Weather	Meteorology	Icing
PLT499		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Powerplant	Turbine Components / Functions
<u>FAA-H-8083-3 - Airplane Flying Handbook</u>		
Aircraft Systems	Powerplant	Turbine Components / Functions
Aircraft Systems	Powerplant	Turbine Compressors
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Engine Instruments
Aircraft Systems	Powerplant	Starting
Aircraft Systems	Powerplant	Turbine Components / Functions
Aircraft Systems	Powerplant	Turbine Compressors
Aircraft Systems	Powerplant	Turbine Sensors
PLT502		
<u>Aeronautical Information Manual</u>		
Publications	AIM	Light Gun Signals
PLT523		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aerodynamics	Airfoils	Vortex Generators
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aerodynamics	Airfoils	Vortex Generators

**Flight Engineer Turboprop-Added Rating (FEP)
Sample Questions**

FLIGHT ENGINEER TURBOPROP-ADDED RATING (FEP)

1. During flight with zero angle of attack, the pressure along the upper surface of the wing will be

- A—equal to atmospheric pressure.
- B—less than atmospheric pressure.
- C—greater than the pressure below the wing.

Answer: B.

Learning Statement: Recall angle of attack-characteristics/forces/principles.

2. Oil extracts the most heat from which turbine engine components?

- A—Turbine bearings.
- B—Compressor bearings.
- C—Accessory drive bearings.

Answer: A.

Learning Statement: Recall powerplant-controlling engine temperature.

3. Why should hydraulic fluid be filtered?

- A—Water in the fluid could freeze.
- B—It assures a positive feed of foam free fluid to the hydraulic pump inlet.
- C—Contaminants may damage the seals and cylinder walls causing internal leakage.

Answer: C.

Learning Statement: Recall hydraulic systems-components/operating principles/characteristics.

4. What precaution should be taken when using truck-mounted deice/anti-ice equipment?

- A—Run the airplane engines at idle.
- B—Spray engine and APU inlets directly.
- C—Spray pitot inlets and static ports indirectly.

Answer: C.

Learning Statement: Recall aircraft anti-icing/deicing-methods/fluids.

5. Which maintenance task may a flight engineer perform while operating under 14 CFR part 125.

- A—Landing light replacement if there is no certificated mechanic available.
- B—Remove, inspect, and replace a chip detector if the malfunction occurs in a remote area.
- C—Replenish hydraulic fluid in accordance with applicable regulations and the certificate holder's manuals.

Answer: C.

Learning Statement: Recall regulations-persons authorized to perform maintenance.

LIST OF REFERENCE MATERIALS SPECIFIC TO THE FLIGHT ENGINEER TURBOPROP-ADDED RATING (FEP)

Topic	Content	Specific
PLT002 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aircraft Performance Atmospheric Effects	Airspeed
PLT011 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aircraft Performance Charts	Take Off Power
Aircraft Performance Charts	Takeoff Power	
Aircraft Performance Charts	Temperature	
PLT012 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aircraft Performance Computations	Fuel
PLT016 <u>FAA-H-8083-1 - Weight and Balance Handbook</u>	Aircraft Performance Computations	Fuel Dump
PLT018 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aerodynamics Principles of Flight	Load Factor
PLT019 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aircraft Performance Charts	Cabin Altitude
Aircraft Performance Computations	Cabin Altitude	
PLT021 <u>FAA-H-8083-1 - Weight and Balance Handbook</u>	Weight and Balance Aircraft Loading	Computations
Weight and Balance Aircraft Loading	Formulas	
Weight and Balance Center of Gravity	Computations	
Weight and Balance Center of Gravity	Shifting Weight	
PLT038 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aircraft Performance Charts	Torque in Inch-Pounds
PLT041 <u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>	Aircraft Systems Flight Instruments	Altimeter
PLT108 <u>AC 120-58 - Pilot Guide for Large Aircraft Ground Deicing</u>	Airport Operations Ground Deicing	Glycol Properties / Mixtures
Airport Operations Ground Deicing	Procedures / Good Practices	
Airport Operations Ground Deicing	Types	
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant	Aircraft Systems Propeller	Deicing Boots
PLT109 <u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>	Aircraft Systems Electrical	Batteries / Maintenance / Hazards
PLT110 <u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>	Aircraft Systems Landing Gear	Brake System Operation and Components
PLT117 <u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>	Aircraft Systems De-Icing / Anti-Icing	Anti-icing / Deicing Equipment
PLT124 <u>AC 00-6 - Aviation Weather</u>	Aircraft Performance Atmospheric Effects	Atmospheric Density
PLT128 <u>AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Weather</u>	Hazardous	Icing

PLT135	FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	
Aircraft Performance	Charts	Cabin Altitude
Aircraft Performance	Charts	Cabin Pressure Altitude
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Pressurization / Valves / Controls / Operation
PLT136		
AC 91-51 - Effect of Icing on Aircraft Control and Airplane Deice and Anti-Ice Systems		
Aircraft Systems	Powerplant	Turbine Characteristics
PLT137		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Environmental	Vapor Cycling
Cooling/Component/Operation/Servicing		
PLT138		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Landing Gear	Wheels
PLT139		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Fire Control	Sensors / Testing / Operation
Aircraft Systems	Landing Gear	Retracted Safety / Warning System
PLT166		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Pressure
Aeronautical Information Manual		
Instrument Procedures	En Route	Altimeter Setting Procedures
PLT168		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		
Aerodynamics	Principles of Flight	Angle of Attack
Aerodynamics	Principles of Flight	Forces Acting on Aircraft
PLT173		
AC 00-6 - Aviation Weather		
Weather	Meteorology	Atmosphere
PLT203		
AC 00-6 - Aviation Weather		
Weather	Meteorology	High Altitude
PLT207		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General		
Aircraft Systems	Electrical	Generators / Alternators / Controls / Systems
PLT210		
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		
Aircraft Systems	Powerplant	Engine Operation
Aircraft Systems	Powerplant	Turbine Components / Functions
PLT212		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Fire Control	Extinguishing Agent / System / Preflight
PLT235		
FAA-H-8083-3 - Airplane Flying Handbook		
Aerodynamics	Principles of Flight	Forces Acting on Aircraft
PLT243		
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		
Aircraft Systems	Propeller	Centrifugal Twisting
PLT251		
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General		
Aircraft Systems	Fuel / Oil	Fuel Servicing
Aircraft Systems	Fuel / Oil	Fuel Specifications
Aircraft Systems	Fuel / Oil	Specifications
Aircraft Systems	Powerplant	Fuel Requirements
PLT253		
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Fuel / Oil	Fuel Boost Bumps

PLT273	FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe		
Aircraft Systems	Hydraulic	Specifications	
Aircraft Systems	Hydraulic	System Operation	
PLT278			
Aerodynamics for Naval Aviators			
Aircraft Performance	Atmospheric Effects	Temperature	
PLT310			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aerodynamics	Load Factor	Atmospheric Criteria	
PLT318			
Aeronautical Information Manual			
Flight Operations	Normal Procedures	Minimum Fuel Advisory	
PLT324			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Fuel / Oil	Oil System Failure Modes	
PLT326			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Environmental	Oxygen	
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Environmental	Oxygen	
PLT327			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Environmental	Oxygen	
PLT342			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Powerplant	Turbine Compressors	
PLT346			
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe			
Aircraft Systems	Flight Controls / Primary	Ailerons	
PLT351			
FAA-H-8083-3 - Airplane Flying Handbook			
Aircraft Systems	Propeller	Feathering	
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Propeller	Beta Range	
Aircraft Systems	Propeller	Deicing	
Aircraft Systems	Propeller	Feathering	
Aircraft Systems	Propeller	Governor Operation	
Aircraft Systems	Propeller	Propeller Forces	
Aircraft Systems	Propeller	Stresses	
Aircraft Systems	Propeller	Unfeathering	
PLT410			
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations			
Regulations	14CFR Part 121	IOE	
PLT413			
14 CFR part 25 Airworthiness Standards: Transport Category Airplanes			
Regulations	14CFR Part 25	Fuel Jettisoning	
PLT473			
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge			
Aircraft Systems	Flight Controls / Primary	Elevators / Horizontal Stabilizer	
Aircraft Systems	Flight Controls / Secondary	Trim Tabs	
PLT478			
FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General			
Aircraft Systems	Powerplant	Starters	
PLT479			
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant			
Aircraft Systems	Powerplant	Engine Start	
Aircraft Systems	Powerplant	Starters	
Aircraft Systems	Powerplant	Starting	
PLT493			
AC 00-6 - Aviation Weather			
Weather	Meteorology	Icing	
PLT497			
Aeronautical Information Manual			
Publications	AIM	Transponder Operation	

PLT499[FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge](#)

Aircraft Systems	Powerplant	Turbine Characteristics
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[FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant](#)

Aircraft Systems	Powerplant	Engine Instruments
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Aircraft Systems	Powerplant	Starting
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Aircraft Systems	Powerplant	Turbine Components / Functions
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PLT502[Aeronautical Information Manual](#)

Publications	AIM	Light Gun Signals
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PLT523[FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe](#)

Aerodynamics	Airfoils	Vortex Generators
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**Flight Engineer Reciprocating Engine-Added Rating (FER)
Sample Questions**

FLIGHT ENGINEER RECIPROCATING ENGINE–ADDED RATING (FER)

1. Which of the following is considered an auxiliary flight control?

- A—Ruddervator.
- B—Upper rudder.
- C—Leading-edge flaps.

Answer: C.

Learning Statement: Recall secondary flight controls –types/purpose/functionality.

2. What is the primary source of directional stability for an airplane?

- A—CG position.
- B—Vertical tail.
- C—Horizontal tail.

Answer: B.

Learning Statement: Recall forces acting on aircraft-stability/controllability.

3. What is the purpose of electrical bonding jumpers?

- A—Decrease the probability of lightning damage to such elements as control hinges.
- B—Minimize electrolytic corrosion by connecting the airplane parts to form an integral unit.
- C—Provide a high-resistance path for electrical equipment, thereby eliminating ground wires.

Answer: A.

Learning Statement: Recall aircraft performance-atmospheric effects.

4. Which type of oxygen system is the flight deck equipped with normally?

- A—Constant-flow.
- B—Phase dilution.
- C—Diluter-demand.

Answer: C.

Learning Statement: Recall oxygen system-components/operating principles/characteristics.

5. (Refer to FAA-CT-8080-6A, Figure 40.) What is the loaded CG in percent of MAC under operating conditions No. 1?

- A—28.9 percent.
- B—30.5 percent.
- C—32.9 percent.

Answer: B.

Learning Statement: Calculate weight and balance.

LIST OF REFERENCE MATERIALS SPECIFIC TO THE FLIGHT ENGINEER RECIPROCATING ENGINE-ADDED RATING (FER)

Topic	Content	Specific
PLT011 FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Aircraft Performance Charts	Takeoff Power
PLT012 FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Aircraft Performance Computations	Flight Computations
Aircraft Performance	Computations	Fuel
PLT016 FAA-H-8083-1 - Weight and Balance Handbook	Aircraft Performance Computations	Fuel Dump
Aircraft Performance	Computations	Load Factor
PLT018 FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Aerodynamics Principles of Flight	Cabin Altitude
Aerodynamics	Principles of Flight	Cabin Altitude
PLT019 FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Aircraft Performance Charts	Formulas
Aircraft Performance	Charts	Shifting Weight
Aircraft Performance	Computations	Glycol Properties / Mixtures
PLT021 FAA-H-8083-1 - Weight and Balance Handbook	Weight and Balance Aircraft Loading	Temperature
Weight and Balance	Aircraft Loading	Types
Weight and Balance	Center of Gravity	Deicing Boots
PLT108 AC 120-58 - Pilot Guide for Large Aircraft Ground Deicing	Airport Operations Ground Deicing	Batteries / Maintenance / Hazards
Airport Operations	Ground Deicing	Fuel System
Airport Operations	Ground Deicing	Water Injection
Airport Operations	Ground Deicing	Detonation
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant	Aircraft Systems Propeller	Improper Combustion
Aircraft Systems	Propeller	Mixtures
PLT109 FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General	Aircraft Systems Electrical	Humidity Effects
Aircraft Systems	Electrical	Icing
PLT115 FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant	Aircraft Systems Fuel / Oil	Mixtures
Aircraft Systems	Fuel / Oil	Cabin Altitude
Aircraft Systems	Fuel / Oil	Cabin Pressure Altitude
Aircraft Systems	Powerplant	Pressurization / Valves / Controls / Operation
Aircraft Systems	Powerplant	Vapor Cycling
PLT124 FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Aircraft Systems Powerplant	Wheels
Aircraft Systems	Powerplant	
PLT128 AC 20-117 - Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing	Weather Hazardous	
Weather	Hazardous	
PLT134 FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant	Aircraft Systems Powerplant	
Aircraft Systems	Powerplant	
PLT135 FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge	Aircraft Performance Charts	
Aircraft Performance	Charts	
Aircraft Performance	Charts	
FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	Aircraft Systems Environmental	
Aircraft Systems	Environmental	
PLT137 FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	Aircraft Systems Environmental	
Aircraft Systems	Environmental	
Cooling/Component/Operation/Servicing		
PLT138 FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	Aircraft Systems Landing Gear	
Aircraft Systems	Landing Gear	

PLT173		
<u>AC 00-6 - Aviation Weather</u>		
Weather	Meteorology	Atmosphere
PLT189		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Intake / Carb / Inlet Heat
PLT190		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	De-Icing / Anti-Icing	Intake / Carburetor Icing
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	De-Icing / Anti-Icing	Intake / Carburetor Icing
PLT207		
<u>14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations</u>		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches
<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>		
Aircraft Systems	Electrical	Circuit Breakers / Fuses / Relays / Switches
Aircraft Systems	Electrical	Generators / Alternators / Controls / Systems
PLT210		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Engine Operation
PLT212		
<u>FAA-H-8083-30 - Aviation Maintenance Technician Handbook – General</u>		
Flight Operations	Emergency Procedures	Electrical Fires
PLT243		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Propeller	Centrifugal Twisting
PLT249		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Improper Combustion
Aircraft Systems	Powerplant	Mixtures
PLT253		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Fuel / Oil	Fuel Boost Bumps
Aircraft Systems	Fuel / Oil	Fuel System
PLT273		
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Hydraulic	Accumulators
Aircraft Systems	Hydraulic	Specifications
Aircraft Systems	Hydraulic	System Operation
PLT324		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Fuel / Oil	Oil Cooler System
Aircraft Systems	Fuel / Oil	Oil System
Aircraft Systems	Fuel / Oil	Specifications
PLT326		
<u>Aeronautical Information Manual</u>		
Human Factors	Aeromedical	Oxygen Mask Operation
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Environmental	Oxygen
<u>FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe</u>		
Aircraft Systems	Environmental	Oxygen
PLT327		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Environmental	Oxygen
PLT342		
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Exhaust Systems
PLT343		
<u>FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge</u>		
Aircraft Systems	Powerplant	Superchargers
<u>FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant</u>		
Aircraft Systems	Powerplant	Engine Problems / Failure Modes
Aircraft Systems	Powerplant	Turbochargers
Aircraft Systems	Powerplant	Water Injection

PLT346	FAA-H-8083-31 - Aviation Maintenance Technician Handbook – Airframe	
Aircraft Systems	Flight Controls / Primary	Ailerons
PLT351		
FAA-H-8083-3 - Airplane Flying Handbook		Feathering
Aircraft Systems	Propeller	Deicing
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		Feathering
Aircraft Systems	Propeller	Governor Operation
Aircraft Systems	Propeller	Propeller Forces
Aircraft Systems	Propeller	Stresses
Aircraft Systems	Propeller	Unfeathering
PLT365		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		Engine Instruments
Aircraft Systems	Powerplant	Engine Instruments
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		Specifications
Aircraft Systems	Powerplant	
Aircraft Systems	Powerplant	
PLT410		
14 CFR part 121 Operating Requirements: Domestic, Flag, and Supplemental Operations		
Regulations	14CFR Part 121	IOE
PLT413		
14 CFR part 25 Airworthiness Standards: Transport Category Airplanes		Fuel Jettisoning
Regulations	14CFR Part 25	
PLT473		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		Elevators / Horizontal Stabilizer
Aircraft Systems	Flight Controls / Primary	Trim Tabs
Aircraft Systems	Flight Controls / Secondary	
PLT478		
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		Ignition System Hazard
Aircraft Systems	Powerplant	
PLT479		
FAA-H-8083-32 - Aviation Maintenance Technician Handbook – Powerplant		Preflight / Hydraulic Lock
Aircraft Systems	Powerplant	
PLT483		
FAA-H-8083-25 - Pilot's Handbook of Aeronautical Knowledge		Superchargers
Aircraft Systems	Powerplant	
PLT497		
Aeronautical Information Manual		Transponder Operation
Publications	AIM	